

## JAMES RIVER BASIN

## 02037000 JAMES RIVER AND KANAWHA CANAL NEAR RICHMOND, VA

LOCATION.--Lat 37°33'52", long 77°34'28", Henrico County, Hydrologic Unit 02080205, on left bank 75 ft downstream from Canal bridge, 400 ft downstream from head gates, 1,200 ft north of north end of Boshier Dam on James River, 1.6 mi upstream from Huguenot Memorial Bridge, and 2.0 mi west of Richmond city limits.

PERIOD OF RECORD.--September 1936 to current year.

GAGE.--Water-stage recorder. Datum of gage is 106.07 ft above sea level. Prior to Oct. 1, 1938, at datum 3.06 ft higher.

REMARKS.--Records fair except those for periods of doubtful gage-height record, Nov. 3-5, and Jun. 1-8, which are poor. Canal diverts from James River 1,200 ft upstream from Boshier Dam and discharges into river at several points downstream from gaging station near Richmond. Beginning with the 1969 water year, the descriptive statement that above 2,540 ft<sup>3</sup>/s, gage height, 14.5 ft, there is interchange of flow with the James River and that discharge above 2,540 ft<sup>3</sup>/s is included in discharge for the James River near Richmond (station 02037500) has been used. Daily discharges in excess of 2,540 ft<sup>3</sup>/s for water years 1937-68 should be used with caution until historical records of canal construction and modifications can be reviewed. Figures given show flow in canal only. Probably no flow at times when head gates were closed. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 340 ft<sup>3</sup>/s, Mar. 21; maximum gage height, 8.61 ft, Mar. 21; minimum discharge, 1.5 ft<sup>3</sup>/s, Oct. 26, result of head gates being closed.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	8.3	6.0	4.7	19	18	21	18	e2.8	52	117	132
2	138	9.9	4.9	4.6	18	19	21	23	e2.6	41	117	132
3	132	e8.4	4.8	6.0	18	18	20	19	e2.9	32	113	132
4	133	e7.0	5.6	4.7	62	18	30	26	e2.4	24	99	136
5	131	e5.6	5.4	4.6	45	18	22	20	e2.5	18	92	136
6	131	8.9	4.9	4.7	41	18	21	17	e2.5	14	91	136
7	132	35	4.5	5.0	28	18	20	17	e2.7	11	90	134
8	134	7.2	4.4	7.5	21	26	20	38	e2.6	64	99	141
9	123	8.5	4.3	6.0	20	54	23	16	6.6	146	109	137
10	123	5.7	5.9	8.4	19	21	21	14	9.5	149	124	138
11	125	5.2	6.0	9.0	19	19	20	13	8.7	145	158	138
12	125	5.0	5.0	8.3	20	18	20	14	8.5	145	163	137
13	124	5.1	4.7	9.1	19	18	20	13	11	140	160	138
14	125	7.7	4.5	8.0	19	18	20	12	2.3	132	158	134
15	126	5.4	4.4	11	19	18	20	12	8.5	131	159	132
16	125	5.0	4.3	8.2	19	18	20	12	22	124	159	133
17	91	5.1	4.2	7.2	68	18	38	12	26	116	151	133
18	15	4.9	4.1	6.8	25	24	22	12	23	126	146	135
19	3.3	4.8	4.0	7.0	30	71	22	11	20	128	148	134
20	2.8	6.2	4.0	6.7	24	34	21	9.3	19	123	142	138
21	2.6	6.3	3.9	6.5	19	77	20	8.6	16	119	139	135
22	2.7	17	4.7	6.5	18	43	20	8.0	14	113	134	138
23	4.1	6.0	6.2	40	30	37	20	7.9	12	106	134	137
24	6.6	5.6	5.4	13	24	24	19	8.5	14	107	131	136
25	7.1	5.7	7.4	8.3	20	22	19	8.3	13	109	132	135
26	3.2	5.7	5.5	7.3	19	22	19	7.2	11	111	134	136
27	4.2	5.4	7.8	9.3	18	21	19	6.0	8.3	110	136	135
28	2.9	5.2	7.2	85	18	21	19	7.0	64	109	133	133
29	5.1	5.1	5.7	32	---	21	19	5.2	71	109	132	135
30	6.5	6.6	6.0	31	---	21	19	3.5	63	110	132	145
31	7.0	---	5.0	20	---	21	---	e2.9	---	114	132	---
TOTAL	2232.1	227.5	160.7	396.4	719	814	635	401.4	472.4	3078	4064	4071
MEAN	72.0	7.58	5.18	12.8	25.7	26.3	21.2	12.9	15.7	99.3	131	136
MAX	141	35	7.8	85	68	77	38	38	71	149	163	145
MIN	2.6	4.8	3.9	4.6	18	18	19	2.9	2.3	11	90	132

e Estimated.

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## 02037000 JAMES RIVER AND KANAWHA CANAL NEAR RICHMOND, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	592	622	646	667	679	670	685	663	670	604	590	571
MAX	1078	1014	1220	1145	1086	1094	1108	1086	1061	956	1108	937
(WY)	1949	1948	1949	1949	1979	1951	1951	1952	1951	1940	1940	1949
MIN	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60	.60
(WY)	a1981	a1980	a1980	a1980	a1980	a1980	a1980	a1980	a1980	a1980	a1980	a1980

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1937 - 1998	
ANNUAL TOTAL	33607.3		17271.5			
ANNUAL MEAN	92.1		47.3		638	
HIGHEST ANNUAL MEAN					1023	
LOWEST ANNUAL MEAN					1.48	
HIGHEST DAILY MEAN	304	Jul 25	163	Aug 12	b3860	Aug 18 1940
LOWEST DAILY MEAN	c2.6	Oct 21	c2.3	Jun 14	(d)	(f)
ANNUAL SEVEN-DAY MINIMUM	c4.1	Dec 15	c2.6	Jun 2	c.44	Jan 1 1991
INSTANTANEOUS PEAK FLOW			340	Mar 21	(g)	
INSTANTANEOUS PEAK STAGE			8.61	Mar 21	h29.10	Jun 23 1972
INSTANTANEOUS LOW FLOW			1.5	Oct 26	(d)	(f)
10 PERCENT EXCEEDS	252		135		988	
50 PERCENT EXCEEDS	17		19		802	
90 PERCENT EXCEEDS	5.3		4.7		17	

- a Estimated, leakage through head gates; also 1983.  
b See REMARKS.  
c Result of headgates being closed.  
d Probably no flow at times when head gates were closed prior to 1958.  
f Many days in 1937-38, 1949-50, 1952, 1954-55, and 1957.  
g Interchange of flow with James River makes maximum discharge indeterminate.  
h From floodmarks.

